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EXAMINER	
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2674	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/327,282	JEONG ET AL.	
	Examiner	Art Unit	
	Kevin M. Nguyen	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 February 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3-6 and 13-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3-6 and 13-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 August 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/18/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is made in response to applicant's supplemental amendment filed on 02/23/2005. Claims 3-6 and 13-35 are amended, and claims 7-12 are cancelled. Thus, claims 3-6 and 13-35 are currently pending in the application. It is noted that applicant's supplemental amendment with respect to the claims 3-6 and 13-35 necessitated the new grounds of rejection presented in this Office action.

2. The amendment to the specification filed on 08/09/2004 is entered. The drawings were received on 08/09/2004. These drawings are acknowledged.

Claim Objections

3. Claims 3, 16 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 4, 19 respectively. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 3, 4, 6, 16-22 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Kumagawa et al (newly cited, US 6,232,944) hereinafter Kumagawa.

5. As to claims 3, 4, 16, 19, Kumagawa teaches a method and an apparatus for driving a matrix type liquid crystal panel provided with a plurality of thin film transistor coupled to scanning wires and signal wires, and a plurality of liquid crystal cells, at intersecting points of the scanning wires and the signal wires (an LCD panel 366 has scanning electrodes 361-363 and signal electrodes 364, 365 crossings of the scanning electrodes and the signal electrodes form pixels, see fig. 38, col. 40, lines 26-29), the method comprising steps of:

applying a scanning signal to the scanning wire (applying a scanning signal by the scanning drive circuit 305, fig. 27, col. 35, line 35);

supplying data signals (supplying data signals by the signal driving circuit 306, fig. 27, col. 35, line 38) having a width enlarged in accordance with an increased distance from a source of the scanning signal to the signal wires (the width of the compensating pulse control signal is varied for each drive IC, see col. 38, lines 66-67; the pulse width increases in the order of a. nearest, b. middle, and c. farthest, see col. 38, lines 52-53; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines) wherein an accurate data signal is applied to each of the plurality of liquid crystal cells such that a picture displayed on the liquid crystal panel is not distorted(the changing condition of the data signal controls in a proper period independently, see col. 17, lines 31-34,

the vertical line crosstalk due to the distortion of the scanning voltage can be reduced, see col. 8, lines 31-33).

6. As to claims 6, 22, Kumagawa teaches a method and an apparatus for driving a matrix type liquid crystal panel provided with a plurality of thin film transistor coupled to scanning wires and signal wires, and a plurality of liquid crystal cells, at intersecting points of the scanning wires and the signal wires (an LCD panel 366 has scanning electrodes 361-363 and signal electrodes 364, 365 crossings of the scanning electrodes and the signal electrodes form pixels, see fig. 38, col. 40, lines 26-29), the method comprising steps of:

applying a scanning signal to the scanning wire (applying a scanning signal by the scanning drive circuit 305, fig. 27, col. 35, line 35) having a width varied in accordance with a position of the signal wire relative to the scanning wire (this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines, see col. 41, lines 25-28);

supplying data signals (supplying data signals by the signal driving circuit 306, fig. 27, col. 35, line 38) having a width enlarged in accordance with an distance from a source of the scanning signal to the signal wires (the width of the compensating pulse control signal is varied for each drive IC, see col. 38, lines 66-67; the pulse width increases in the order of a. nearest, b. middle, and c. farthest, see col. 38, lines 52-53; a width of the compensating pulse varies in

accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines).

As to claims 17, 20, Kumagawa teaches the apparatus as set forth in claims 16, 19, wherein the signal side driving means includes a plurality of signal wire driving cells for driving a signal wires by a certain area and supplying the data signals to the divided areas (a STN type LCD was made for 800x600 dots color display using the above explained IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60).

As to claims 18, 21, Kumagawa teaches the apparatus as set forth in claims 16, 19, wherein the width control means applies an output enable signal to the scanning side driving means (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59, the CR circuit formed by the resistance of the scanning electrode and the capacitance of the pixel, see col. 39, lines 10-11), the output enable signal having a width of a disable period enlarged in accordance with proceeding from the start point to the end point of the signal wire (this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28).

7. As to claim 27, Kumagawa teaches a method of driving a liquid crystal display (LCD) device having a plurality of scanning lines, a plurality of data lines generally orthogonal to the scanning lines, and a plurality of liquid crystal cells formed at the intersections of data lines and scanning lines (an LCD panel 366 has scanning

electrodes 361-363 and signal electrodes 364, 365 crossings of the scanning electrodes and the signal electrodes form pixels, see fig. 38, col. 40, lines 26-29), the method comprising:

applying a scanning line signal from a scanning driver integrated circuit (IC) to one of the scanning lines of the LCD connected at one end to the scanning driver IC (the scanning drive circuit 305, fig. 27, col. 35, line 35; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60);

applying data line signals to each of the data lines, a first width of a first one of the data line signals applied to a first one of the data lines located a first distance from the scanning driver IC being greater than a second width of a second one of the data line signals applied to a second one of the data lines located a second distance from the scanning driver IC, wherein the first distance is greater than the second distance (the width of the compensating pulse control signal is varied for each drive IC disposed in the signal drive circuit so that the width of the compensating pulse can be varied easily, see col. 38, line 66 to col. 39 line 1; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines; according to the effect of the offset adder circuit, the pulse width increase in the order of a. nearest , b. middle and c. farthest, which mean the distance from the power source, see fig. 22, col. 38, lines 51-54), wherein an accurate data signal is applied to each of the plurality of liquid crystal cells such that a

picture displayed on the liquid crystal panel is not distorted (the changing condition of the data signal controls in a proper period independently, see col. 17, lines 31-34, the vertical line crosstalk due to the distortion of the scanning voltage can be reduced, see col. 8, lines 31-33).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 23-31, 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumagawa.

9. As to claim 23, Kumagawa teaches a driving system for a liquid crystal display device having a plurality of scanning lines, a plurality of data lines generally orthogonal to the scanning lines, and a plurality of liquid crystal display cells formed at the intersection of data lines and scanning lines (an LCD panel 366 has scanning electrodes 361-363 and signal electrodes 364, 365 crossings of the scanning electrodes and the signal electrodes form pixels, see fig. 38, col. 40, lines 26-29), the driving system comprising:

a plurality of scanning driver integrated circuits connected to the scanning lines for applying scanning signals thereto (the scanning drive circuit 305, fig. 27, col. 35, line 35; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60);

a plurality of data drive integrated circuits connected to the data lines for applying data thereto (the signal driving circuit 306, fig. 27, col. 35, line 38; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60);

a controller for varying time periods during which the scanning signals are applied by the scanning driver integrated circuits to the scanning lines in accordance with the scanning lines' respective positions relative to the data line source (this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28; control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines).

Accordingly, Kumagawa teaches all of claimed limitation except for a plurality of scanning driver integrated circuits and a plurality of data driver integrated circuits.

However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC and the scanning drive IC as taught by Kumagawa to make the plurality of scanning driver integrated circuits and the plurality of data driver integrated circuits because the mere fact that a given structure is

the integral circuit does not preclude its consisting of various element in making separable of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

As to claim 24, Kumagawa teaches the driving system of claim 23, wherein the width controller supplies output enable signal to the data driver integrated circuits to control the time periods during which the data signals are applied by the data driver integrated circuits to the data lines (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60, the signal driver circuit 306 for varying the width of the compensating pulse added to each signal electrode, col. 38, lines 64-65).

10. As to claim 25, Kumagawa teaches a driving system for a liquid crystal display device having a plurality of scanning lines, a plurality of data lines generally orthogonal to the scanning lines, and a plurality of liquid crystal display cells formed at the intersection of data lines and scanning lines (an LCD panel 366 has scanning electrodes 361-363 and signal electrodes 364, 365 crossings of the scanning electrodes and the signal electrodes form pixels, see fig. 38, col. 40, lines 26-29), the driving system comprising:

a plurality of scanning driver integrated circuits connected to the scanning lines for applying scanning signals thereto (the scanning drive circuit 305, fig. 27,

col. 35, line 35; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60);

a plurality of data drive integrated circuits connected to the data lines for applying data thereto (the signal driving circuit 306, fig. 27, col. 35, line 38; a STN the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60);

a controller for varying time periods during which the scanning signal are applied by the scanning driver integrated circuits to the scanning lines in accordance with the scanning lines' respective positions relative to the data line source (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60; this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28).

Accordingly, Kumagawa teaches all of the claimed limitation, except for a plurality of scanning driver integrated circuits and a plurality of data driver integrated circuits.

However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC and the scanning drive IC as taught by Kumagawa to make the plurality of scanning driver integrated circuits and the plurality of data driver integrated circuits because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

As to claim 26, Kumagawa teaches the driving system of claim 25, wherein the controller supplies output enable signals to the scanning driver integrated circuits to control the widths of the time periods during which the scanning signals are applied by the scanning driver integrated circuits to the scanning lines (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60; this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28).

As to claim 28, Kumagawa teach the method of claim 27, wherein applying the data signals to each of the data lines, comprises:

supplying a data signal to a plurality of data driver integrated circuits connected to the data lines (the signal driving circuit 306, fig. 27, col. 35, line 38; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60);

supplying output enable signals to the data driver integrated circuits, wherein a width of a disable period of a first one of the output enable signals applied to a first one of the data driver integrated circuits connected to the first of the data lines is less than a width of a disable period of a second one of the output enable signals applied to a second one of the data driver integrated circuits connected to the second one of the data lines (the width of the compensating pulse control signal is varied for each drive IC disposed in the signal drive circuit so that the width of the compensating pulse can be varied easily, see col. 38, line 66 to col. 39 line 1; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines; according to the effect of the offset adder circuit, the pulse width increase in the order of a. nearest , b. middle and c. farthest, which mean the distance from the power source, see fig. 22, col. 38, lines 51-54).

Accordingly, Kumagawa teaches all of the claimed limitation except for a plurality of data driver integrated circuits.

However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC as taught by Kumagawa to make the plurality of data driver integrated circuits because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

11. As to claim 29, Kumagawa teaches a method of driving a liquid crystal display (LCD) device having a plurality of scanning lines, a plurality of data lines generally orthogonal to the scanning lines, and a plurality of liquid crystal cells formed at the intersections of data lines and scanning lines (an LCD panel 366 has scanning electrodes 361-363 and signal electrodes 364, 365 crossings of the scanning electrodes and the signal electrodes form pixels, see fig. 38, col. 40, lines 26-29), the method comprising:

applying data line signals from a plurality of data driver integrated circuits (ICs) to the data lines of the LCD, each data line being connected at one end to one of the data driver ICs (the signal driving circuit 306, fig. 27, col. 35, line 38; a STN the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60);

applying scanning line signals to each of the scanning lines, a first width of a first one of the scanning line signals applied to a first one of the scanning lines

located a first distance from the data driver ICs being different from a second width of a second one of the scanning line signals applied to a second one of the scanning lines located a second distance from the data driver ICs, wherein the first distance is greater than the second distance (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60; this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28).

Accordingly, Kumagawa teaches all of the claimed limitation except for a plurality of data driver integrated circuits.

However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC as taught by Kumagawa to make the plurality of data driver integrated circuits because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward

patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

As to claim 30, Kumagawa teach the method of claim 29, wherein applying the scanning line signals to each of the scanning lines comprises supplying output enable signals to the scanning driver integrated circuits (the scanning drive circuit 305, fig. 27, col. 35, line 35; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60);

wherein a width of a disable period of a first one of the output enable signals applied to a first one of the scanning driver integrated circuits connected to the first of the scanning lines is greater than a width of a disable period of a second one of the output enable signals applied to a second one of the scanning driver integrated circuits connected to the second one of the scanning lines (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59; the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60; this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28).

12. As to claim 31, Kumagawa teaches a method for driving a liquid crystal display device having a plurality of scanning lines, a plurality of data lines, a plurality of data signal sources and a plurality of scanning signal sources (an LCD panel 366 has scanning electrodes 361-363 and signal electrodes 364, 365 crossings of the scanning

electrodes and the signal electrodes form pixels, see fig. 38, col. 40, lines 26-29), comprising:

controlling scanning signals supplied to the scanning lines (the scanning drive circuit 305, fig. 27, col. 35, line 35);

controlling data signals supplied to the data lines (the signal driving circuit 306, fig. 27, col. 35, line 38);

wherein the data signals have widths enlarged depending on an increased distance of the data lines from the scanning signal sources (the width of the compensating pulse control signal is varied for each drive IC disposed in the signal drive circuit so that the width of the compensating pulse can be varied easily, see col. 38, line 66 to col. 39 line 1; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines; according to the effect of the offset adder circuit, the pulse width increase in the order of a. nearest , b. middle and c. farthest, which mean the distance from the power source, see fig. 22, col. 38, lines 51-54) wherein an accurate data signal is applied to each of the plurality of liquid crystal cells such that a picture displayed on the liquid crystal panel is not distorted (the changing condition of the data signal controls in a proper period independently, see col. 17, lines 31-34, the vertical line crosstalk due to the distortion of the scanning voltage can be reduced, see col. 8, lines 31-33).

Accordingly, the combination of Inada with Kumagawa teaches all of the claimed limitation except for a plurality a plurality of data sources and a plurality of scanning signal sources.

However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC and the scanning drive IC as taught by Kumagawa to make the plurality of data sources and the plurality of scanning signal sources because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

13. As to claim 34, Kumagawa teaches a driving system for driving a liquid crystal display device having a plurality of scanning lines, a plurality of data lines, a plurality of data signal sources and a plurality of scanning signal sources (an LCD panel 366 has scanning electrodes 361-363 and signal electrodes 364, 365 crossings of the scanning electrodes and the signal electrodes form pixels, see fig. 38, col. 40, lines 26-29), comprising:

a data driver (a signal driving circuit 306, fig. 27, col. 35, line 38);

a gate driver (a scanning drive circuit 305, fig. 27, col. 35, line 35);

a plurality of width expanders for controlling widths of data signals provided to the data lines in accordance with a distance from the data lines to the scanning signal sources (the width of the compensating pulse control signal is varied for each drive IC disposed in the signal drive circuit so that the width of the compensating pulse can be varied easily, see col. 38, line 66 to col. 39 line 1; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines; according to the effect of the offset adder circuit, the pulse width increase in the order of a. nearest , b. middle and c. farthest, which mean the distance from the power source, see fig. 22, col. 38, lines 51-54);

wherein a scanning signal has a varying width depending on the distance of the scanning lines from the data signal sources (this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28, the scanning electrode depends on the distance from the scan drive circuit, so that distortion is larger at the farthest portion and smaller at the nearest portion, col. 40, line 66 through col. 41, line 2).

Accordingly, Kumagawa teaches all of the claimed limitation except for a plurality a plurality of data drivers and a plurality of gate drivers.

However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC and the scanning drive IC as taught by Kumagawa to make the plurality of data drivers and the plurality of gate drivers because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

14. As to claim 35, Kumagawa teaches a driving system driving a liquid crystal display device having a plurality of scanning lines, a plurality of data lines, a plurality of data signal sources and a plurality of scanning signal sources (an LCD panel 366 has scanning electrodes 361-363 and signal electrodes 364, 365 crossings of the scanning electrodes and the signal electrodes form pixels, see fig. 38, col. 40, lines 26-29), comprising:

a data driver (a signal driving circuit 306, fig. 27, col. 35, line 38);

a gate driver (a scanning drive circuit 305, fig. 27, col. 35, line 35);

a plurality of width expanders for controlling widths of a scanning signal provided to the scanning lines in accordance with a position of the scanning lines relative to the data signal sources (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59; this embodiment varies the width of the

compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28, the scanning electrode depends on the distance from the scan drive circuit, so that distortion is larger at the farthest portion and smaller at the nearest portion, col. 40, line 66 through col. 41, line 2).

wherein a plurality of data signals have varying widths depending on the distance of the data lines from the scanning signal sources (the width of the compensating pulse control signal is varied for each drive IC disposed in the signal drive circuit so that the width of the compensating pulse can be varied easily, see col. 38, line 66 to col. 39 line 1; a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines; according to the effect of the offset adder circuit, the pulse width increase in the order of a. nearest , b. middle and c. farthest, which mean the distance from the power source, see fig. 22, col. 38, lines 51-54).

Accordingly, Kumagawa teaches all of the claimed limitation except for a plurality a plurality of data drivers and a plurality of gate drivers.

However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC and the scanning drive IC as taught by Kumagawa to make the plurality of data drivers and the plurality of gate

drivers because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

15. Claims 5, 13-15, 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inada et al (newly cited, US 5,311,169) hereinafter Inada in view of Kumagawa.

16. As to claim 5, Inada teaches a method of driving a matrix type liquid crystal panel (a liquid crystal display apparatus, see abstract) provided with a plurality of thin film transistor coupled to scanning wires and signal wires, and a plurality of liquid crystal cells, at intersecting points of the scanning wires and the signal wires (a display panel 22 is made of thin film element, col. 9, line 37, scanning side electrodes Y1, Y2,...,Yn of the display panel 22 are connected to a scanning side driver circuit 24, data side electrode X1, X2,...Xn of the display panel 22 are connected to a data side driver circuit 26, see fig. 9, col. 9, lines 40-45), the method comprising steps of:

applying a data signals to the signal wires (data side electrode X1, X2,...Xn of the display panel 22 are connected to a data side driver circuit 26, see fig. 9, col. 9, lines 40-45);

supplying a scanning signal having a width reduced in accordance with an increased distance from a source of the signal wire to the scanning wire (the

pulse width applied to the electrodes is gradually decreased as scanning of the electrodes sequentially occurs, see abstract, lines 11-13).

Accordingly, Inada teaches all of the claimed limitation, except for supplying a scanning signal having a width reduced in accordance with an increase distance from a source of the signal wire to the scanning wire.

However, Kumagawa teaches a related TFT-LCD panel comprising supplying a scanning signal having a width reduced in accordance with an increase distance from a source of the signal wire to the scanning wire (a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify each of Inada's scanning signals having the width reduced to make the width of the compensating pulse varies in accordance with the location of the signal electrodes as taught by Kumagawa in order to achieve the benefit of suppress increasing of the area of the peripheral portion of the LCD as well as a cost and the power consumption of a drive IC (See Kumagawa, col. 3, lines 56-58).

17. As to claim 13, Inada teaches an apparatus for driving a matrix type liquid crystal panel (a liquid crystal display apparatus, see abstract) provided with a plurality of thin film transistor coupled to scanning wires and signal wires, and a plurality of liquid crystal cells, at intersecting points of the scanning wires and the signal wires (a display panel 22 is made of thin film element, col. 9, line 37, scanning side electrodes Y1, Y2,...,Yn of the display panel 22 are connected to a scanning side driver circuit 24, data side

electrode X1, X2,...Xn of the display panel 22 are connected to a data side driver circuit 26, see fig. 9, col. 9, lines 40-45), the apparatus comprising:

scanning side driving means for applying a scanning signal to the scanning wire (scanning side electrodes Y1, Y2,...,Yn of the display panel 22 are connected to a scanning side driver circuit 24, see fig. 9, col. 9, lines 40-45);

signal side driving means for supplying data signal to the signal wires (data side electrode X1, X2,...Xn of the display panel 22 are connected to a data side driver circuit 26, see fig. 9, col. 9, lines 40-45);

width control means for allowing the scanning signal to have a width reduced in accordance with an increased distance from a source of the signal wire (the pulse width applied to the electrodes is gradually decreased as scanning of the electrodes sequentially occurs, see abstract, lines 11-13);

Accordingly, Inada teaches all of the claimed limitation, except for width control means for allowing the scanning signal have a width reduced in accordance with an increased distance from a source of the signal wire, wherein a width expander is utilized for controlling the width of the scanning signal voltage

However, Kumagawa teaches a related TFT-LCD panel comprising width control means (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59) for allowing the scanning signal have a width reduced in accordance with an increased distance from a source of the signal wire (a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other

factors, see abstract, three last lines); and wherein a width expander is utilized for controlling the width of the scanning signal voltage (a control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59, the CR circuit 307 formed by the resistance of the scanning electrode and the capacitance of the pixel, see col. 39, lines 10-11).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify each of Inada's scanning signals having the width reduced to make the width of the compensating pulse varies in accordance with the location of the signal electrodes, the changing condition of the data signal controls in the proper period independently as taught by Kumagawa in order to achieve the benefit of suppress increasing of the area of the peripheral portion of the LCD as well as a cost and the power consumption of a drive IC (See Kumagawa, col. 3, lines 56-58).

Accordingly, the combination of Inada with Kumagawa teaches all of the claimed limitation except for a plurality a plurality of data sources and a plurality of scanning signal sources.

However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC and the scanning drive IC as taught by Kumagawa to make the plurality of data sources and the plurality of scanning signal sources because the mere fact that a given structure is the integral circuit does

not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

As to claim 14, Kumagawa teaches the apparatus as set forth in claim 13, wherein the signal side driving means includes a plurality of signal wire driving cells for driving a signal wires by a certain area and supplying the data signals to the divided areas (a STN type LCD was made for 800x600 dots color display using the above explained IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60).

As to claim 15, Kumagawa teaches the apparatus as set forth in claim 13, wherein the width control means applies an output enable signal to the scanning side driving means (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59, the CR circuit formed by the resistance of the scanning electrode and the capacitance of the pixel, see col. 39, lines 10-11), the output enable signal having a width of a disable period enlarged in accordance with proceeding from the start point to the end point of the signal wire (this embodiment varies the width of the compensating pulse along the scanning line in accordance with the difference of the numbers of the on-pixels between two neighboring scan lines , see col. 41, lines 25-28).

18. As to claim 33, Inada teaches an apparatus for driving a matrix type liquid crystal panel (a liquid crystal display apparatus, see abstract) provided with a plurality of thin film transistor coupled to scanning wires and signal wires, and a plurality of liquid crystal cells, at intersecting points of the scanning wires and the signal wires (a display panel 22 is made of thin film element, col. 9, line 37, scanning side electrodes Y1, Y2,...,Yn of the display panel 22 are connected to a scanning side driver circuit 24, data side electrode X1, X2,...Xn of the display panel 22 are connected to a data side driver circuit 26, see fig. 9, col. 9, lines 40-45), the apparatus comprising:

scanning side driving means for applying a scanning signal to the scanning wire (scanning side electrodes Y1, Y2,...,Yn of the display panel 22 are connected to a scanning side driver circuit 24, see fig. 9, col. 9, lines 40-45);

signal side driving means for supplying data signal to the signal wires (data side electrode X1, X2,...Xn of the display panel 22 are connected to a data side driver circuit 26, see fig. 9, col. 9, lines 40-45);

width control means for allowing the scanning signal to have a width reduced in accordance with an increased distance from a source of the signal wire (the pulse width applied to the electrodes is gradually decreased as scanning of the electrodes sequentially occurs, see abstract, lines 11-13);

Accordingly, Inada teaches all of the claimed limitation, except for width control means for allowing the scanning signal have a width reduced in accordance with an increased distance from a source of the signal wire, wherein a width expander is utilized for controlling the width of the scanning signal voltage.

However, Kumagawa teaches a related TFT-LCD panel comprising width control means (control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59) for allowing the scanning signal have a width reduced in accordance with an increased distance from a source of the signal wire (a width of the compensating pulse varies in accordance with a location of the signal electrodes, display pattern or other factors, see abstract, three last lines); and wherein a width expander is utilized for controlling the width of the scanning signal voltage (a control circuit 307 is capable of adjusting the timing and width of the compensating pulse control signal CL using an external clock, see figs. 27, col. 36, lines 57-59, the CR circuit 307 formed by the resistance of the scanning electrode and the capacitance of the pixel, see col. 39, lines 10-11).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify each of Inada's scanning signals having the width reduced to make the width of the compensating pulse varies in accordance with the location of the signal electrodes, the changing condition of the data signal controls in the proper period independently as taught by Kumagawa in order to achieve the benefit of suppress increasing of the area of the peripheral portion of the LCD as well as a cost and the power consumption of a drive IC (See Kumagawa, col. 3, lines 56-58).

Accordingly, the combination of Inada with Kumagawa teaches all of the claimed limitation except for a plurality a plurality of data sources and a plurality of scanning signal sources.

However, Kumagawa teaches the IC as a signal drive IC and a normal drive IC as a scanning drive IC, see col. 33, lines 58-60.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the signal drive IC and the scanning drive IC as taught by Kumagawa to make the plurality of data sources and the plurality of scanning signal sources because the mere fact that a given structure is the integral circuit does not preclude its consisting of various element in making separable or plural of old elements was not to solve an existent problem such inquiry is whether bringing them separately was obvious. Making Separable of Its Parts is normally not directed toward patentable subject matter as desired as was judicially recognized. See *Nerwin v. Erlichmanr, 168 USPQ 177, 179 (PTO Bd. of Int. 1969).*

Response to Arguments

19. Applicant's arguments filed 02/23/2005 have been fully considered but they are not persuasive. Applicant argues features in the independent claims 3-6, 13, 16, 19, 22, 23, 25, 27, 29, 31-35 that are newly recited. Thus, new grounds of rejection have been used. See above rejections.

Conclusion

20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Nguyen whose telephone number is 571-272-7697. The examiner can normally be reached on MON-THU from 8:00-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick N. Edouard can be reached on 571-272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8000.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the Patent Application Information Retrieval system, see http://portal.uspto.gov/external/portal/pair. Should you have questions on access to the

Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197

(toll-free).

Kevin M. Nguyen
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Art Unit 2674

KMN
October 20, 2005

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SUPERVISORY PATENT EXAMINER